SEVA SADAN'S
R. K. TALREJA COLLEGE OF ARTS, SCIENCE AND COMMERCE
COURSE AND PROGRAM OUTCOME

NAME OF DEPARTMENT: ECONOMICS
Name of Programme: B.A AND M.A (CBCS)
Academic Year 2018-19

Name of the Program	Course outcomes	Program Outcome
BA Economics	● Analyze definitions and subject matter of Microeconomics and to develop deep insights in various tools of economic analysis. ● Enrich with deep insights about various principles of Economics and its great bearing on economic analysis and decision-making process. ● Deepen with the knowledge of basic economic concepts like demand, supply, price and other related topics such as Market Equilibrium, Elasticity of Demand etc. ● Make familiar with different concepts of measuring utility and effects of changes in purchasing power and its impact on consumer equilibrium and consumer behavior. ● Learn concepts of production function, and short and long run production function and producer's equilibrium. ● Study various concepts of costs and revenues, and derive their interrelationships using cost curves and revenue curves. ● Deepen the knowledge about the theory of distribution, like rent, wages and interest and profit. ● Make familiar, the different approaches such as TR and TC and MR and MC, and various forms of market structures and equilibrium determination under the same. ● Make familiar, with different concepts of measuring utility and effects of changes in purchasing power and its impact on consumer equilibrium. ● Develop knowledge about concepts of production function, Cobb-Douglas production function and Factors variability and its impact on short and long run production function and to derive producer's equilibrium. ● Enrich with deep insights about various concepts of costs and revenue, and nature of cost and revenue curves, and their interrelationships.	● To develop fundamental knowledge of each branch of economics ● To develop analytical thinking with the help of various statistical and mathematical tools ● To develop skill of application of economic concepts in real life situation ● To nurture the ability of decision making on basis of theoretical knowledge ● Knowledge of microeconomics, macroeconomics, public economics,etc. and to understand and analyse various issues

	● Deepen the knowledge about equilibrium under the competitive forms of market and concepts of consumer's and producer's surplus. ● Understand the objectives of demonetization. ● Analyse the short term and long term impact of demonetization. ● Enumerate the debt dynamics. ● Understand the concepts associated with Budget. ● Implication of fiscal policy. ● The course enumerates positive and negative implication of UBI. ● Understand the concepts related to Universal basic income. ● Enumerate the index of health with reference to all states of India. ● Make familiarity with different concepts like convergence and divergence, mortality rate, life expectancy and fertility rate. ● Crucial outcome of the course is that it helps the students to better compare,the Indian economy with advanced countries, in terms of human resources. ● Make acquaintance with different concepts money supply, its components, and factors determining money supply, awareness about velocity, and factors affecting velocity of circulation of money supply, and awareness about Fisher and Cambridge equations. ● Develop understanding about Keynesian approach of demand for money and interest determination as well as awareness about money market equilibrium. Derivation of LM Curve and shifts in LM Curve. ● Learn about saving and investment functions, marginal propensity to save, interest elasticity of investment demand function, animal spirits, equilibrium in goods market, derivation of IS Curve, shifts in IS Curve. ● Deepen the knowledge about goods and money market equilibrium with the help of IS-LM approach and an in-depth knowledge of Macro Economic policies namely monetary policy and its instruments and effectiveness, fiscal policy and its instruments and effectiveness. ● Understand indicators of development with reference to Maharashtra economy. ● Make familiarity with role and problems of tribal population. ● Enumerate the policy framework. ● Understand water problems and its management in Maharashtra. ● Understand the Kelkar committee findings and its recommendations with respect to health, regional disparities, healthcare systems etc.	and problems in Indian Economy such as agriculture, trade, commerce, industry, demography etc.

	● Evaluation of committee report. ● To learn connectivity of Maharashtra through roads, railways, broadband, ports, and air. ● To learn sources of monopoly, calculation of price, output, and profit for monopoly, price discrimination, public policy towards monopoly. ● To understand basics of game theory, prisoner's dilemma, Nash equilibrium, game tree etc. ● To have familiarity with various Oligopoly models such as, Cournot Model, Bertrand Model, Edgeworth Model, Chamberlain Model, Kinked demand curve model, Collusion and Cartels, and Price Leadership. ● To understand Welfare economics, and to learn General equilibrium and its existence, the Pareto Model, Kaldor-Hicks Compensation Criterion, Arrow's Impossibility theorem. ● Making students familiar with the concept of growth and development and methods of measurement of growth and development including HDI & GDI. Understanding the concept of sustainable development, Green GDP, Capability approach. ● Understanding theories of development such as, Big Push theory, Schumpeter's theory of Development, Solow's growth model etc., along with structural issues in development. Studying the role and significance of health and nutrition in economic development. ● Studying important concepts related to development, like poverty, inequality and inclusive growth and challenges revolving around it by learningKuznet's inverted U hypotheses, Self Help Groups, and microfinance. ● Understanding the role of infrastructure and technology in economic development along with the concepts like green technology and Schumacher's Concept of Intermediate/Appropriate Technology. ● Understand fundamentals of Industrial Economics, Evaluate industries under public, private and cooperative sector, Understand industrial location strategies, Analyse industrial productivity, Understand the problem of Industrial sickness, industrial development in India. ● Understand the changing policies related to the Indian industry in the globalised era, Evaluate MNCs, effectiveness of pollution control policies. ● The central focus of this course is an introductory study of the concepts, principles and methods of economic research. The course focuses on the logic of social science research and on practical problems of applying quantitative and qualitative methods in the process of formulating research questions. ● The course will provide students an opportunity to learn how to collect	

	and analyze primary and secondary data. Methods covered include interview design and technique, case study method and a study of secondary data sources. Computer Applications to research analysis and tools commonly used in research are introduced to sharpen the analytical and presentation skills of the learner. ● Using an interdisciplinary perspective, this paper covers the structure of research and theory construction, types of research as well as the main issues of data gathering and data quality and learning of basic statistical tools. A learner is expected to undertake practice on quantitative techniques and carry out computer practical exercise to grasp the nuance of fundamental statistical analysis using computers. ● The course is designed to focus on economic causes of environmental problems. ● To learn about Rio declaration on environmental development, Agenda 21 programme of action for sustainable development etc. ● Understand economic implications of environmental policies, standards, Pigovian Taxes and effluent fees, tradable permits, and their implementations. ● To learn various methods of measuring benefits of environmental improvements such as, use and non-use values, market based, and non-market based, contingent valuation, travel cost method, hedonic price method etc. ● Understand the impact of climate change on sustainable development**.** ● Analyse the implications of climate change on natural resources. ● Apply theories, concepts, and techniques of economics for evaluation of environmental projects. ● To study international environmental agreements. ● Make familiarity with classical economists like Adam Smith, Ricardo, Marx - and their contribution to economics. ● Develop knowledge starting with Marshall,till Schumpeter, and their contributions. ● Enrich with deep insights about Keynesian thoughts. ● Deepen the knowledge about Supply side economics and gain information about Nobel Prize winningeconomists. ● To learn about the goods market in an open economy, import export functions, exchange rate determination and policy. ● To learn the IS-LM model, and its implications, Fiscal and Monetary policy under Fixed and Flexible Exchange Rates, The Mundell-Fleming Trilemma. ● To understand Exchange Rate Regimes and Crises.	

	● To study important incidences in International Monetary History from the 20th century onwards. ● The course provides a general understanding of the fundamentals ofinternational economic theories. ● It discusses the current trends and tendencies of the global macroeconomics and international relations. ● This course provides the complete knowledge of international trade theories, both classical and modern. ● To understand importance of trade, recent trends, and concept and role of FDI inflows and outflows, global supply chain, business process outsourcing etc. ● To develop an understanding ofeconomic crises in recent times so as to draw lessons from the same for developingcountries like India. ● To learn about GATT, GATS, Regional Trade Agreements, ASEAN, SAARC, SAFTA, Protectionism etc. ● Understand Indian labour market. ● Analyse child and female labour. ● Enumerate implication of Globalisation, Labour Market reforms, Second National Commission on Labour. ● Enumerate Growth of Trade Unions. ● Understand the roles and problems of trade unions. ● Enumerate Problems of Industrial Relations. ● Understand IndustrialDisputes and their settlement mechanisms. ● To study Collective bargaining in India, worker's participation in management etc. ● Evaluate Labour Welfare, and Social Security Measures. ● Analyse various concepts, theories, and principles of labour welfare, International Labour Organisation, and its impact on Indian Labour Legislations. ● The primary goal is to strengthen student's critical thinking and reasoning skills at planning economic research and to enable them to communicate research results competently. ● To study various statistical tools, and their applications in research, for e.g., Correlation, Linear Regression Analysis, Time Series etc. ● To study Index Numbers, their classifications, uses, and limitations. ● To study the Scientific Method using Hypothesis formulation and testing. ● The study equips the students with the basic understanding of the research methodology and	

	provides an insight into the application of modern analytical tools and techniques for the purpose ofresearch report writing. ● Studying the relationship between various concepts of demography and development. ● Understanding structural transformation models like Lewis Model, Clark-Fisher Model, concepts like urbanization, migration, and informal sector. ● Making students aware of role ofIndian agriculture in economic development, and various issues in agricultural sector, such as market failure, land reforms, low productivity, credit systems, microfinance, contractual relationships between tenants and landlords etc. ● Analysing the interrelationship between environment and economic development along with emerging environmental issues ● Identify the basic difference between inter-regional and international trade. ● Understand types of foreign exchange rates and exchange rate system in India, FEMA. ● Enumeration of emerging new International Economic Orders like GATT, Uruguay Round, WTO, FTA, BIT, DTAA etc. ● Analysis of International Fiscal Institutions like IMF, World Bank, ADB, NDB, AIIB, and their role with special reference to India. ● To understand South East Asian Crisis, Global Economic Crisis, Global Financial Crisis of 2008, International Debt Problem, and lessons for India. ● Understand and evaluate international financial system. ● Enumerate the need for emergence of global financial architecture. ● Analyse the principle of international business and strategies adopted by firms to expand globally. ● To study the role of FDI, FII, QFI, FPI, and MNCs in India.	
MA Economics	● Make acquaintance with theorems of welfare, lump- sum taxes, need for government intervention, market failure, social choice, voting rules, Arrow Impossibility theorem etc. ● Develop knowledge about various concepts of public goods and its optimal provision and various methods of evaluating government expenditure. ● Enrich with deep insights about concepts and types of taxes, and taxation theories, its impact on labour supply and evasion and punishment. ● Deepen the knowledge about Centre and State financial relationship, intergovernmental transfers, VAT, GST etc.	● Understand the framework in which the functioning of the economy and economic policies operates. ● Apply the knowledge of economics to solve

	● Demonstrate knowledge and understanding of Mathematical techniques like set theory, De Morgan's Laws, Straight line slope and intercepts, calculus, matrix algebra, logarithms, exponentiation etc. to apply to economic theories. ● To study Differential and Integral Calculus, and its applications in Economics. ● To learn about Constrained Optimization in economics, Lagrange Multipliers and Equality Constraints, constrained optimization with inequality constraints etc., and its applications in Economics. ● To study the operations and applications of Matrices in Economics. ● To learn Game Theory, Prisoner's Dilemma, Nash Equilibrium, etc., Measures of Risk Aversion. ● To study various models of Oligopoly, such as Cournot Model, Bertrand model, Stackelberg Model etc., and its comparison with monopoly and tacit collusion, limit pricing, and entry deterrence in monopoly. etc. ● To enrich with deep insights, concepts of Moral Hazard and Adverse Selection, market for lemons, optimal contracts under symmetric and asymmetric information, screening and signalling, and their applications. ● To deepen the knowledge about alternative theories of the firm, such as Morris Model, Williamson's Model of managerial enterprise, behavioral theories of the firm, full cost pricing, and resource based, knowledge based, and transaction-based theories of the firm. ● To understand imperfectly flexible prices and price settings, menu costs, real rigidity, and neutrality, quadratic price adjustments etc. ● To understand New Classical Economics, Wealth Effects, Government Budget Constraint, Money/Bond Finance, Government Budget Deficit, and Riparian Equivalence. ● To understand the new Keynesian Macroeconomics and the NK Model of Inflation. ● To understand the macroeconomic policy including concepts like rules vs discretion, credibility and reputation, dynamic inconsistency banks etc., and financial intermediaries, and unconventional monetary policy for targeting the problem of inflation, exchange rates, etc. ● To enhance the understanding of various types of relationships in Agricultural Production such as, Factor-Factor, Factor-Product, Product-Product. ● To understand price and income instability, and government intervention for Price Support, and reduction in instability, MSP, role of Buffer Stock etc. ● To learn about Rural Credit Market, role and performance of Commercial Banks, Co-operative	complex economic problems of the country. ● Undertake research on various social and economic issues and come out with solutions to perennial problems in this sphere. ● Develop macroeconomic models, which can serve as the workhorse for a fast-growing economy. ● Using various econometric and time series techniques evaluate the policies implemented by the government. ● Understand the actual functioning of the macro economy. ● Understand the economic behaviour microeconomic entities. ● Understand microeconomics of sectoral/ development

	Credit Institutions, Regional Rural Banks, NABARD, Micro-credit through self-help groups. ● To understand various issues in Agricultural Labour Market such as, unemployment, free and unfree labor, gender-based discrimination, wage rate differentials, and contract laborers. ● To learn about types of farming, segmented property rights, land-lease market, crop sharing practices, inequality in distribution of land holdings, contract farming, etc. ● To enhance understanding of Agricultural Development. ● To understand factors determining Agricultural Development. ● To understand the reason behind decline in the percentive share of Agricultural Sector in GDP once economic development starts. ● To learn various theories of Agricultural Development (Lewis, Mellor, Schultz, Hayami and Ruttan). ● To understand various government policies such as, Green Revolution, Food Security, and various models of technological changes resulting in input use efficiency in agricultural sector. ● Competitiveness of Indian Agriculture and Government policies in globalizing world. ● To study the trends in Agricultural Production, trends in Agricultural Exports and Imports, and its implications. ● To study National Food Policy. ● Understand the theories of absolute and comparative advantage and the gains from trade, theory of reciprocal demand and offer curves, etc. ● Understand the effects of international trade on economic development. ● Understand the neo-classical trade theories such as Heckscher-Ohlin Theory, Factor Price Equalization Theorem, and generalisation to the factors and goods, Leontief Paradox etc. ● To learn about concepts of Intra-Industry Trade, and various modern trade theories such as the Neo-Heckscher-Ohlin Model, Favley Model, Neo-Chamberlain Model, Krugman Model etc. and Oligopolistic Models, Brander-Krugman Model, Reciprocal-Dumping Model, Iceberg Model, etc. ● To learn about various instruments of trade policy such as, Tariffs, Quotas, Subsidies etc., and to understand the Stopler-Samuelson Theorem, Metzler's Paradox, Theory of Customs Union, Quotas and Export subsidies, and gains from trade and regional agreements. ● Understand the interrelationships between economic development and the environment, converging on to notions of sustainable development, Environmental Kuznet Curve, Green Accounting etc.	issues. ● Ability to design macroeconomic models. ● Ability to critically understand the economic policies in India. ● Ability to understand the complex interrelationship between the various macroeconomic variables and its implications for policy design. ● Analyse macroeconomic policies including especially fiscal, monetary, and commercial policies of India.

	● To understand the concepts of public, private, and common pool resources, externalities and market failure, social cost-benefit analysis, pollution, Coase Theorem, etc. ● To study the few approaches to environmental policies such as command and control, environmental standards, technology mandates, market-based instruments such as taxes, subsidies, liability instruments, tradable permits and rehabilitation and resettlement policy, Kyoto Protocol etc. ● Understand and analyse the issue of common pool environmental resources in global, regional, and local eco-system contexts. ● Apply theories, concepts, and techniques of economics for evaluation of environmentalprojects. ● Understand and apply supplementary analytical Tools in environmental framework ● To make familiarity with concepts and evolution and role of Trade Unions andapproaches to the origin of Trade Unions. ● To learn about bargaining, Theory of Wages, impact of unions on productivity and wages, Employment Security and Efficiency, Unorganised Sector etc. ● To develop knowledge about scope and approaches to industrial relations. ● To learn about Industrial Relations in India, highlighting the growth and structure of trade unions, independent and white-collar unions in India, trade unions and contract workers etc. ● To learn about employer's organisations and industrial conflicts. ● To learn about role of the state in industrial relations in India, various labour policies and legislations in India, impact of globalisation and legislations affecting industrial relations including statutory and non-statutory measures to settle industrial disputes and worker's participation in management etc. ● Develop the knowledge of basic theorems of exchange rate determination, Purchasing Power Parity, Interest Parity, types of foreign exchange markets, and the role of arbitrage in keeping the foreign exchange market efficient. ● To understand the problem of disequilibrium in balance of payment, relationship between balance of payments and national income accounts, approaches to balance of payments adjustments such as elasticity, absorption, monetary and portfolio balance approaches. ● Theoretical exposition of different aspects of international investment and financing including cash management, portfolio investment, and settlement of international portfolio investments. ● Various international financial institutions such as international monetary fund. ● To learn about gold standard and gold exchange standard, Special Drawing Rights, theory of	

	Optimum Currency Areas, international policy co-ordination, currency board, international financial and currency crisis, international debt crisis and corrective measures. ● To understand relationship between population and economic development, population, and environment, and to learn about implications of population growth on regional imbalances, demography and sources of demographic data, Malthusian theory of population, theory of Demographic Transition, Age and Sex composition, Age Pyramids, and Aging population, etc. ● Understand and analyse data related to nuptiality and fertility. ● Understand measurement of morbidity and mortality. ● Understand the relationship between migration and population projection with the help of various models and methods.	

NAME OF DEPARTMENT: HISTORY
Name of Programme: B. A. and M. A. History
Academic Year: 2018-19

Name of the Program	Course outcomes	Program Outcome
BA (History)	● The course is designed to make the students aware about the making of modern India and the struggle for independence. ● To enable the students to comprehend the transition of Europe from Medieval to Modern times and its impact on the world. ● To provide accurate knowledge of the most significant events and personalities of the period under study and encourage understanding of the making of the modem world. ● To acquaint the students with different sources of Ancient Indian History. ● To enable the students to understand the political, socio-economic and cultural developments in the period under study and appreciate the rich cultural heritage in India ● To acquaint the students with the history of early Medieval India that laid the foundation of the Sultanate in India. ● To study the contribution of Vijayanagar and Bahamani kingdoms to Medieval Indian History. ● To examine the administrative, socio-economic and cultural aspects of Medieval India. ● To acquaint students with regional history.	● To develop fundamental Knowledge of fundamental aspects of history as well as its allied components. ● To motivate students to pursue higher studies such as Maters Program ● To encourage students to pursue diploma courses in Travel and Tourism, Archival Science and

	● To understand political and socio-economic developments during the 19th and 20th centuries. ● To create understanding of the movement that led to the formation of Maharashtra ● To understand the basic facets of Archaeology. ● To evaluate the importance of Epigraphy. ● To study the importance of Numismatics as an important source of history ● To introduce the students to the regional history of Maharashtra. To familiarize students with the literary sources of the history of the Marathas. To help students to understand the forces leading to the establishment of Maratha power under Chhatrapati Shivaji Maharaj. ● To trace some of the major events of post-World War II period. ● To understand the significance of these events. To comprehend the ways in which events of the latter half of the twentieth century have influenced the present. ● To develop an understanding of Heritage Tourism amongst students. ● To introduce the students to new trends in Heritage Tourism. ● To prepare the students for careers in Tourism industry. ● To acquaint the students with the history of India since the emergence of the Mughal rule. ● To understand administration of the Mughal Empire. ● To study the rise of the Maratha Power ● To understand the process of making the Constitution and the Integration and Reorganization of Indian States. ● To acquaint the students with the political developments in India after Independence. ● To comprehend the socio-economic changes and progress in science and technology in India. ● To inform the students about the role of Museums in the preservation of Heritage. ● To understand the importance of Archival Science in the study of History. ● To encourage students to pursue careers in various Museums and Archives in India and abroad. ● To enable the students to understand the processes that led to the expansion of the Maratha Power. ● To appreciate the contribution of the Marathas in the national politics of the 18th century. ● To develop an understanding of the society and culture in Maharashtra in the 18th century. ● To acquaint the students with some of the major changes that occurred in Asia after World	Museology ● To arouse students' interesting research.

	War II. ● To understand the ways in which Asian nations resisted and defied the control of the West. ● To comprehend some of the trends that emerged in Asia ● To introduce students to the Cultural Heritage of Maharashtra ● To understand various resources of Heritage Tourism in Maharashtra ● To acquaint the students with the relevance and scope of Heritage Tourism	
MA History	● To teach students the basic scientific methodology and tenets as implemented in history writing ● To enable students to understand with the evolution of sociocultural, religious and political processes in the early Indian past on the basis of which the plural Indian society was formed. ● To facilitate students with the evolution of socio-cultural, religious and political processes in Medieval Indian past and introducing them to important social, cultural ideas and institutions ● To facilitate students with the evolution of socio-cultural, religious and political processes in Modern Indian History as well as impact of British rule in India. ● To equip students with the trends of the comprehension of the past and to make them understand the relationship between Philosophy and History. ● To equip students with main events and processes of Post-Independence Indian history, Modern World History ● To make students aware about social movements of the world and introducing her/him with main emancipatory movements of the modern world.	● To develop fundamental knowledge of core aspects of history as well as its allied components. ● To motivate students to pursue higher studies such as M. Phil and Ph D ● To arouse students' interest in research.

NAME OF THE DEPARTMENT: PSYCHOLOGY
ACADEMIC YEAR: 2018 – 2019

Name of the Program	**Course Outcomes**	**Program outcome**
BA Psychology	● Learners got the basic concepts of Psychology and Contemporary knowledge in Psychology was imparted. ● Developed interest in psychology subject and created foundation for the further study in the	NA

	subject. ● With the Empirical study of the concepts from various fields of psychology the applicative aspect of the subject in everyday life was enhanced ● Learners built the knowledge of the basic concept and modern trends in Social Psychology as a branch of Psychology. ● It Fostered interest in Social Psychology as a field of study and research among the learners. ● Learners became aware of the applications of various concept of Social Psychology in the Indian Context. ● Learners gained knowledge and understanding of the basic concepts, principles, perspectives and modern trends in Developmental Psychology. ● It developed interest in Developmental Psychology as a field of study among the learners. ● The Course created awareness of the implications and applications of various concepts, principles and theories of Developmental Psychology in the daily life in the Indian Context. ● Significance and processes involved in animal tissue culture and genetic engineering will be acquired by the students. ● Learners will understand the role of genes in occurrence of inherited diseases and will be able to correlate it with real life situations. ● Learners will be empowered by the knowledge of environment management, wildlife management, self-medication performed by animals, and distribution of animals in different realms.	

NAME OF THE DEPARTMENT: POLITICAL SCIENCE
ACADEMIC YEAR: 2018 – 2019

Name of the Program	Course Outcomes	Program outcome
BA Political Science	● Students got introduced to the constitution and other basic things ● Students had better insight in to the making of the constitution ● Students get knowledge about the working of the constitution, the various institutions, the relevant issues facing the country etc. They need to develop an analytical frame of mind ● Students were introduced to the political and electoral system in India and the actual working of the political system in the country. ● Students understood the federal structure, its working, challenges, the party system, changes etc. and challenges posed by criminalisation, Naxalism and global terrorism.	**NA**

	● Nuances of centre- State relations should be understood properly by the students. ● Students get a better insight in understanding the various factors shaping the Indian political system. ● Students will be able to understand the functioning of administration, developments in the field of public administration, administrative issues in the proper perspective, changing nature of public administration and the relevance of the use theories in administration. ● The students will have first hand understanding of administrative procedures, better insight in to personnel administration, financial process, better grasping of the administrative process & procedures and relevant issues.	

NAME OF THE DEPARTMENT: ENGLISH

Name of Programme: B.A. and M. A. English

Academic Year: 2018-19

Name of the Program	**Course Outcomes**	**Program outcome**
B.A. English	● A student, who has taken admission into this program of B.A. with English as specific subject of study, is expected to target on following outcomes. ● Basic knowledge of English as a Language. ● Major knowledge of English as Literature. ● It helps tracing the development of literary traditions, investigate authors, and differentiate genres. ● Studies how individuals in specific historical, and cultural, represent their experience and ideas through the medium of language. ● Understands the relation between pleasures of literature and real life. ● Develops critical analysis of English Literary studies. ● Basic knowledge of English Grammar. ● It helps undertaking independent research projects, which builds foundation in writing skills.	● To gain Effective communication competence ● To handle various style and registered of English in various personal and professional situation. ● To acquire Enhanced literary and cultural sensibility ● To understand various genres of cultural texts ● To gain enhanced soft skills for better

		employability
MA English	● Students will embrace the idea of the growth of fiction over the period of the last three centuries, along with the social, cultural and psychological implications of the form ● They acclimatize themselves with the various elements of theatre and drama ● They develop enhanced analytical skills ● They harness various theoretical parameters to analyze literary and cultural texts ● Students will be sensitised to the cross-disciplinary nature of literary theories ● Students are able to appreciate the concept of style and discourse in literature ● They master the art of stylistic analysis of academic writings ● Students are able to grasp and understand the literary form, the writer's contribution to the age and its relation to the age they represent ● The course will develop sensitivity of young learners towards life and all that surrounds it ● The course will foster qualities such as understanding and appreciation of other cultures and ways of life ● This advanced understanding and openness of mind will help them form a philosophy of their own ● The course will make students aware of the theoretical foundations of teaching English effectively and help them develop innovative methods of teaching English Language acquainted with the complexities of various marginalized groups and will be sensitized to social differences on the basis of gender, race, class and nation ● It will equip the learner to carry out research in Indian, African, Caribbean, Canadian and Australian literature, paving the way for exploring postmodern and postcolonial sensibilities in literature ● Ability enhancement courses such as Creative Writing and English for Academic and Commercial Purposes will hone writing skills for suitable careers whereas the course on research methodology will introduce students to the basics of research.	● To appreciate and understand English literature of every age with respect to it's socio-cultural background. ● To analyse the rhetorical and narrative structures employed by authors, poets and dramatists. ● To hone the students skills of interpretation and research ● To acquaint learners with various genres, theories and critical approaches to literature. ● To enhance their understanding of multicultural sensibilities

NAME OF THE DEPARTMENT: HINDI

Name of Programme: B.A. and M. A. Hindi

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
BA Hindi	● Creating an interest of literature among students. ● Developing the critical attitudes towards literary writings. ● Enhancing the analytical attitudes to understands prose, poetry and grammar. ● Developing reading, writing, speaking and listening skills. ● Availing the job opportunities in teaching, government job, translation and media.	● To promote and develop Hindi Language Culture and Indian history through History of Hindi Literature ● To understand the tradition of society of every century and era ● To be aware about status of Hindi in science institutions, wide are of Hindi, and Employment related to Hindi ● To engage with various genres of Hindi Literature ● To know about the acceptance of Hindi globally ● To aware of creativity and innovations pertaining to Hindi
MA Hindi	● Hindi Literature demonstrate an understanding of how the Indian culture traditions of Hindi speakers impact on communication in Hindi and the ways in which the language and culture are linked in discourse in Hindi. ● Study of Hindi Literature helps the students to develop self confidence and make them aware of general issues prevailing in the society. ● Since the Hindi language so commonly spoken, some Universities, businesses and governments are offering special opportunities for those who can speak fluently. ● Hindi language is one of very oldest language. Deeper Hindi study on Hindi literature can help students go poetic so much. ● Study of Hindi Literature helps the students to get into different jobs like Asst. Professor, Journalism, Government Jobs, Screen Writing,	● To prepare the students with skills to analyze the concept and different theories of Hindi literature and language. ● To prepare the students for pursuing research or careers in Hindi language and literature and it's allied fields. ● Imbibe the effective communication in both mediums of expression (oral and writing). ● Continue to acquire relevant knowledge and skills appropriate to professional activities. ● Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges.

	Translation, Interpretation, Content Writing/Editing, Speech Writing etc.	

NAME OF THE DEPARTMENT: MARATHI

Name of Programme: B.A. and M. A. Marathi

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
BA Marathi	● Basic knowledge of Marathi as a Language. ● Major knowledge of Marathi as Literature. ● It helps to create skills related to functional use of language in day to day to official activities such as writing an application, Minutes writing, Advertisement writing, Translation skills etc. ● It helps tracing the development of literary traditions, investigate authors, and differentiate genres. ● Studies how individuals in specific historical, and cultural, represent their experience and ideas through the medium of language. ● Basic knowledge of Marathi Grammar and debates related to basic concepts like vibhkti, prayog, shabdjativichar ect. ● It helps to understand the standard rules regarding Marathi writing. ● Creates an interest of literature among students. ● Develops the critical attitudes towards literary writings. ● It develops reading, writing, speaking and listening skills. ● Enhances the understanding of learner regarding various trends in Marathi literature such as Sant sahitya, Panditi sahitya, Shahiri vangmay, Modern Marathi Literature and the literary trends emerged after 1960. ● It enhances awareness regarding various dialects of Marathi.	● Students will be able to develop love and appreciation towards language and Literature. ● Students will be acquainted with various forms of Literature and trends in Literature from Medieval period (1350 A.D.) to contemporary period. ● Students will gain knowledge of various dialects of Marathi, for eg. Malawani, Khandeshi, Aagari. And its importance in cultural sphere. ● Students will get acquainted with various approaches of linguistic studies. ● It will help in undertaking independent research projects, which builds foundation in writing skills. ● Develops critical analysis of Marathi Literary studies.
MA Marathi	● Students will embrace the idea of the growth of literature over the period of the last seven centuries, along with the political, social, cultural and psychological	● Students are able to grasp and understand the literary form, the

	implications of the form. • Students are able to understand thoroughly the core concepts in the Indian and western theory of literature. • They acclimatize themselves with the various elements of theatre, drama, novel, poetry, essay writing etc. • They harness various theoretical parameters to analyze literary and cultural texts. • Students will be sensitized to the cross-disciplinary nature of literary theories. • Students will understand the different methods in Linguistics. • Students are able to grasp and understand the literary form, the writer's contribution to the age and its relation to the age they represent. • The course will foster qualities such as understanding and appreciation of other cultures and ways of life. • This advanced understanding and openness of mind will help them form a philosophy of their own. • The course will make students aware of the theoretical foundations of teaching Marathi effectively and help them develop innovative methods of teaching Marathi Language. • Students will be acquainted with the complexities of various marginalized groups and will be sensitized to social differences on the basis of gender, race, class and nation. For example - Feminism and literature and Adivasi sahitya. • It will equip the learner to carry out research. • Ability enhancement courses such as Creative Writing and Marathi for Academic and Commercial Purposes will hone writing skills for suitable careers whereas the course on research methodology will introduce students to the basics of research. • The role of popular literature becomes clearer for students in analyzing and appreciating social realities. • Enhances awareness regarding business of publication and aspects related to it.	writer's contribution to the age and its relation to the age they represent. • The course will foster qualities such as understanding and appreciation of other cultures and ways of life. • This advanced understanding and openness of mind will help them form a philosophy of their own. • The course will make students aware of the theoretical foundations of teaching Marathi effectively and help them develop innovative methods of teaching Marathi Language. • Students will be acquainted with the complexities of various marginalized groups and will be sensitized to social differences on the basis of gender, race, class and nation. For example - Feminism and literature and Adivasi sahitya. • It will equip the learner to carry out research. • Ability enhancement courses such as Creative Writing and Marathi for Academic and Commercial Purposes will hone writing skills for suitable careers whereas the course on research methodology will introduce students to the basics of research. • The role of popular literature becomes more clear for students in analysing and appreciating

		social realities. ● Enhances awareness regarding business of publication and aspects related to it.

NAME OF THE DEPARTMENT: SINDHI

Name of Programme: B.A. Sindhi

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
BA Sindhi	• Understanding the origin of Sindhi language and its literature. • Identifying the dialects of Sindhi language family. • Analysing the development of script development during British era. • Understanding the concept of history of literature. • Understanding the basis of the classification of Sindhi literature- Lalit kala & Lalit sahitya. • Understanding the importance and basis of the names given to each period of Sindhi literature. • Understanding the features of Natak (Long play) in context of socio - cultural and political condition of that period. • Identifying the eminent Sindhi	● Consciousness about the issues related to women: The students got scope to gain knowledge and share their ideas about the forms of exploitation faced by women in feudalistic system and also learned about its long drawn effects in society, specifically post partion era. ● Relation between stories and society: The student gained knowledge about the relation between the socio cultural condition of a society and the short stories through the lectures. ● Concept of various forms of prose: Students gained knowledge about the various forms of prose. ● Knowledge about reality of middle class: The writers like Sundari Uttamchandani, Ram Panjwani,Kala Prakash,Gobind Mali, Shokot Shoro, Popati Heeranandani. Made an effort to highlight the mentality of middle class by depicting the actions and behaviour of the persons of middle class in their writings. The students got scope to gain ● Knowledge about the reality of middle class expressed in various writings. ● Cultural consciousnesses and the concept of travelogue: The students gained knowledge about the concept of travelogue and realized the role played by cultural consciousness in writing travelogues. ● Art of analyzing 'Lalit Sahitya' and Lalit Kala: ● Religious and Spiritual consciousness: The students gained knowledge about

	writers of each period. • Understanding the differences and development in each era individualy. • Understanding the trends of poetry- Ancient,Classical & modern. • Understanding the history of development of Sindhi drama, short stories and novels. • Understanding the discourse of women in Sindhi literature.	the concept of 'Religion' and its role in making human life healthy, by paper presentation and group discussion sessions on 'Sadhu Vaswani' ● Scientific consciousness : Students gained knowledge about this reality that how the outlook of people towards 'Technology' has changed with time and how the new inventions and discoveries brings new light to the world, by use of Internet.

NAME OF THE DEPARTMENT: MATHEMATICS

Name of Programme: B.Sc. Mathematics

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
BSc Mathematics	● This course gives introduction to basic concepts of Analysis with rigor and prepares students to study further courses in Analysis. Formal proofs are given lot of emphasis in this course which also enhances understanding of the subject of Mathematics as a whole. At the end of this course students should be able to understand limits, continuous functions, sequence of real numbers. ● This course gives expositions to number systems (Natural Numbers & Integers), like divisibility and prime numbers andtheir properties. These topics later find use in advanced subjects like cryptography and its uses in cyber security and such related fields.At the end of this course students should be able to understand integers, divisibility, functions, relations and polynomials. ● This course gives introduction to concepts of limits, continuity, derivatives and	● To develop fundamental knowledge about the different fields ofmathematics, algebra, real analysis, calculus, multivariable calculus, group theory, differential equation, discrete mathematics, metric topology, graph theory, group theory, complex analysis ● To motivate students to

	applications of derivatives. At the end of this course students should be able to understand limits, continuous functions, Intermediate Value theorem and its applications, series, Differentiation of real valued function of one variable, Chain rule, Higher order derivatives, Leibniz rule, Derivative of inverse functions, Implicit differentiation, Rolle's Theorem, Lagrange's and Cauchy's Mean Value Theorems, applications, L-Hospital rule, Taylor's theorem, Definition of critical point, local maximum/minimum, concave/convex functions, point of inflection, second derivative test. ● This course gives expositions to linear algebra. At the end of this course students should be able to understand system of linear equations and matrices, vector spaces, subspaces, bais of a vector space, dimension of a vector space, linear transformation, matrix of a linear transformation, solutions of system of linear equations using rank of a matrix, elementary matrices, determinants, properties of determinants, Crammers rule, Inner product spaces, gram-Schdmitts orthogonalization process.	pursue higher studies such as postgraduate in pure mathematics/applied mathematics/statistics ● To arouse students' interest in research. ● To reflect the broad nature of the subject and developing mathematical tools for continuing further study in various fields of science.

NAME OF THE DEPARTMENT: MICROBIOLOGY

Name of Programme: B.Sc. Microbiology

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
BSc Microbiology	● Introduction to Microbiology for understanding of microorganisms, their structure, isolation, cultivation from natural samples (soil, water, air, food, plants etc), preservation of important organisms along with concept of sterilization, its methodology and importance in microbiology ● Program imparts knowledge of different branches of microbiology like clinical, environmental, health, immunology, enzymology, agriculture, food etc. Also emphasizes to apply this knowledge acquired for betterment of life on earth. ● Program gives details of application of Microbiology in pharma industry, food, clinical research as well as application of microbes in environmental protection.	● To develop fundamental knowledge in various branches of ● Microbiology such as industrial microbiology, Medical Microbiology, Genetics and molecular microbiology, Biochemistry, Immunology,Virology, Food and Dairy microbiology, Environmental Microbiology and interdisciplinary sciences such as ● Bioinformatics and Bioinstrumentation. ● This course aims to enable graduates to enter industry with an appropriate level of understanding of the need for both the science and business aspects to be achievable to make

	● Knowledge of instrumentation from basic to advance and also ability to use laboratory instruments like compound microscope, pH meter, spectrophotometer, centrifuge, electrophoresis, autoclave etc ● Developing and implementing knowledge of technology and microbes together to improve microbiology based industries.	a viable product and enhance their entrepreneur skills. ● Inculcating a spirit of learning and kindling ● curiosity towards the subject in the minds of learners, resulting in their pursuit of higher education in Microbiology ● To arouse students' interest in research
MSc Microbiology	● The program emphasizes to apply knowledge acquired about prokaryotic and eukaryotic cellular processes, interaction of microorganisms among themselves and higher order organisms in environment and biological systems. ● The laboratory training in addition to theory develops the skills to qualify for a broad range of positions in research, industry, consultancy, education and public administration, or for further education in a doctoral program in different fields like pharmaceutical, Food, marine, environmental, agriculture, heath related industries and research in molecular biology. ● Help in developing skilled scientific manpower with an understanding of research ethics involving microorganisms to contribute to application, advancement and impartment of knowledge in the field of microbiology and molecular biology globally. ● The laboratory training will impart knowledge about various methodological and analytic approaches to implement in a chosen specialized area of Microbiology. ● Molding students to compete at national and international competitive examinations and working at research laboratories through course work and Research project at master's level. Develop ability to independently carry out a complete scientific work process or multidisciplinary project including the understanding of theoretical background, hypothesis generation, collection and analysis of data, and interpretation and presentation of results.	• In depth significant knowledge in various fields of Microbiology like Microbial Genetics, Biochemistry, Medical microbiology, Immunology,enzymology, physiology, microbial pathogenicity, environmental and agricultural microbiology, genetic engineering& applied microbiology. • Very good training of basic techniques in microbiology along with advance technology. The students will gain mastery • This program will help in developing skilled scientific manpower with an understanding of research ethics, ability of hypothesis generation, collection and analysis of data, and interpretation and presentation of results. • Creating new generation having better research ideas & executing ability to improve current microbial applications. • Exposure to research which will enable them to plan and execute new research ideas along with analysis & interpretation of data for a research problem. • Best knowledge to compete in national level competitive exams and can pursue career in higher studies.

NAME OF THE DEPARTMENT: PHYSICS

Name of Programme: B.Sc. Physics

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
B.Sc Physics	● Understanding Newton's laws, concepts of friction and the concepts of elasticity, fluid mechanics and apply them in calculations of the motion of simple systems. ● Understanding the concepts of lens system and interference. ● Learning to apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process. ● Understanding nuclear properties and nuclear behaviour, the type isotopes and their applications and the quantum mechanical concepts. ● Understanding the basic mathematical concepts and applications of them in physical situations. ● Understanding basic alternating current theory, electronics- analog and digital, electrostatic and magnetostatic. ● Demonstrate quantitative problem solving skills in all the topics covered. ● Understanding the concepts of mechanics & properties of matter & to apply them to problems. ● Understanding the basic concepts of thermodynamics & its applications in physical situation ● Understanding the basic concepts of mathematical physics and their applications in physical situations. ● Understanding the basic laws of electrodynamics and be able to perform calculations using them. ● Understanding the basics of transistor biasing, operational amplifiers, their applications, basic concepts of oscillators ● Understanding the diffraction and polarization processes and applications of them in physical situations. ● Understand the postulates of quantum mechanics and to understand its importance in	• Demonstrate a rigorous understanding of the core theories, which includes mechanics, optics, electromagnetism, thermodynamics, & quantum mechanics. • Learn the Concepts as Quantum Mechanics, Relativity, introduced at degree level in order to understand nature at atomic levels. • Analyze the applications of mathematics to the problems in physics & develop suitable mathematical method for such application & for formulation of physical theories. • Provide knowledge about material properties and its application for

	explaining significant phenomena in Physics. ● Understanding the applications of interference in design and working of interferometers, resolving power of different optical instruments ● Understand the working of digital circuits, IC 555 timer. ● Demonstrate quantitative problem solving skills in all the topics covered. ● Understand the concepts of mechanics & properties of matter & to apply them to problems. ● Demonstrate quantitative problem solving skills in all the topics covered. ● Understanding some mathematical techniques required to understand the physical phenomena and get exposure to important ideas of statistical mechanics. ● Understanding the basics of crystallography, Electrical properties of metals, Band Theory of solids, demarcation among the types of materials, Semiconductor Physics and Superconductivity ● Understanding the application of quantum mechanics in atomic physics and spectroscopy. ● Understanding the laws of electrodynamics Maxwell's electrodynamics and its relation to relativity. ● Understanding different aspects of classical mechanics - formalism of Lagrange's equations, dynamics of rigid bodies and nonlinear mechanics. ● Understanding the basics of semiconductor devices and their applications, basic concepts of operational amplifier: its prototype and applications , regulated power supplies and digital communication ● Understanding fundamental principles and concepts governing classical nuclear and ● particle physics ● Understanding the special relativity. ● Demonstrate quantitative problem solving skills in all the topics covered.	developing technology in solid state physics and electronics to ease the problems related to the society. • Understand the relationship between particles & atom, as well as their creation & decay. Relate the structure of atoms & subatomic particles. • Understand the fundamental theory of nature at small scale & levels of atom & sub-atomic particles.

NAME OF THE DEPARTMENT: ZOOLOGY

Name of Programme: B.Sc. Zoology

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
B.Sc. Zoology	● The captivating universe of animals would enlighten their minds leading to enhanced passion and love for the subject of Zoology. ● The concept, significance and conservation of biodiversity and ecosystem and population ecology together will be imprinted in the minds of students. ● Life sketches of real life leaders of society will motivate learners for positive thinking. ● Learners will learn to safely operate laboratory instruments. ● A better understanding of diseases, good healthy diet and lifestyle will encourage them to lead quality life. ● Students will comprehend the knowledge of structure of genes, its inheritance pattern and mechanisms involved in central dogma of life. ● Learners will understand the complexity of animal physiology, cell structure and embryology. ● Entrepreneurship will be inculcated in learners by study of economic zoology. ● Fundamental knowledge of animal behaviour and parasitic diseases will enhance their insight. ● Learners will imbibe research attitude. ● Students will be predisposed to the taxonomy of animal kingdom which will enhance their knowledge of Classical Zoology. ● Basic concepts and application of immunology, haematology, pathology and toxicology will expand their knowledge to understand disease diagnostic methods and critical thinking attitude beneficial for pharmaceutical industry. ● Learners will be able to gain insight of human anatomy and processes involved in development homeostasis, enzymology, and endocrinology. ● Significance and processes involved in animal tissue culture and	● Students will be able to develop love and appreciation towards biodiversity and will be motivated to work for its conservation. ● Students will be acquainted with instruments used in laboratories. ● Learners will gain knowledge of basics and mechanism of inheritance. ● Learners will be inculcated with knowledge of health, hygiene, balanced diet, diseases and their treatment. ● Students will comprehend the significance of animal tissue culture and genetic engineering. ● Students will apprehend the knowledge of global distribution of animals by study of zoogeography.

	genetic engineering will be acquired by the students. ● Learners will understand the role of genes in occurrence of inherited diseases and will be able to corelateit with real life situations. ● Learners will be empowered by the knowledge of environment management, wildlife management, self-medication performed by animals, and distribution of animals in different realms.	

NAME OF THE DEPARTMENT: BOTANY

Name of Programme: B.Sc. and M.Sc. Botany

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
BSc Botany	● Learner will get the knowledge of Importance & diversity of algae, Mode of nutrition & economic importance of fungi. Life cycle of primitive bryophytes & general characters of class Musci. ● Cell as basic unit of life with emphasis on plant cell. Structure and function of Ecology and examples of different types of ecosystem, Principles of Epistasis as non Mendelian genetics and ability to solve problem simple problems based on Epistasis. ● Stellar evolution & life cycle of Nephrolepis, Systematic botany through morphological characters, types of inflorescence, Detail systematic position and life, cycle of *Cycas* and its economic importance. ● Basics of anatomy, Epidermal, mechanical & vascular tissue system, & structure of root , stem & leaves. Various pigments involved in photosynthesis, light dependent and light independent pathway of photosynthesis . C3, C4 and CAM pathway for carbon assimilation, Concept of Primary and secondary metabolites, active constituents found in common medicinal plants included in Grandma's Pouch. ● Cryptogams - their general characters, structure, life cycle & economic importance. ● Floral morphology, general characteristics and importance of angiosperms, Techniques used to study Plant Diversity. ● Structure and functions of various cell organelles and different aspects of cell	**Specific core discipline knowledge** ● Students can recall details and information about the evolution, anatomy, morphology, systematics, genetics, physiology, ecology, and conservation of plants and all other forms of life. ● Students can recall details of the unique ecological and evolutionary features of the local and Indian flora. ● Students can familiarize with plants and environmental components by visiting different habitats. **Communication skills** ● Students can communicate effectively using oral and

	cycle and cell division. Mechanisms of sex determination Study the modes of DNA replication and protein synthesis. ● Pharmacognosy and various secondary metabolites found in plants. Different types of forests in India and their economic importance. Applications of Aromatherapy & nutraceuticals. ● Different Fungi - their general characters, structure, life cycle & pathogenicity, Basic features of Pteridophyta and Paleobotany, Gymnospems-their distribution, life cycle & economic importance. ● Mechanical tissues and secondary growth in plants, Various processes involved in respiration, Photorespiration & Photoperiodism, Biogeochemical cycles and various ecological factors. ● Indoor gardening and various national parks and botanical gardens. Plant tissue culture and r-DNA technology, Biostatistics and Bioinformatics. ● Fossils forms and understand their role in evolution, Plant description , morphological and reproductive structures of seven families and also identify and classify according to Bentham & Hooker's System, Pollen study and learn to apply it in various fields. ● Two important organelles and molecular mechanisms of translation, Principles and techniques of plant tissue culture and apply these studies for improving agricultures and horticulture and to become an entrepreneur. ● Contribution of Botanical gardens, BSI to angiosperm study and provide plant description , describe the morphological and reproductive structures of seven families, Phylognetic system of classification, Anatomical adaptations of different ecological plant groups, Development of f male and female gametophytes, embryonic structure and development, Different aspects and importance of Biodiversity and utilize them for conservation of species so as to prevent further loss or extinction of Biodiversity and preserve the existing for future generations. ● Various plant bimolecular structures and appreciate the structures, role, functions and applications of enzymes, Nitrogen and plant hormone metabolism with applications of the same in agriculture and horticulture, principles of genetic mapping, mutations and solve problems based on them, gain knowledge of various metabolic disorders and their Implications, test	written communication skills **Problem solving and research skills** ● Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context

	hypotheses, make observations, collect data, analyze and interpret results, derive conclusions , and evaluate their significance within a broad scientific context, using suitable statistical techniques.	
MSc Botany	The students will be able to: ● Classify algae into various groups, understand the importance in various fields and will be able to collect and identify them ● Classify fungi into various groups, understand the role of fungi in various fields and will be able to collect and identify fungi, fungal pathogens and culture them. ● The students will be able to differentiate between gymnosperms and angiosperms, study their origin and nomenclature, understand volutionary theories for origin of Angiosperms, understand characteristics of selected Angiosperm families and learn the rules governing the code of botanical nomenclature, also learn the recent developments as in molecular systematics. ● Students should be able to understand how to apply the basic concepts of Plant Physiology in other fields and also to know and discuss the concept of physiological processes of plants. ● Students will be able to understand the control points in a cell cycle, Study and apply principles of microbial genetics, understand recombinant DNA technology and study applications of the same for the improvement of crops. ● The student will be able to: Classify Bryophytes into various groups, study their importance Classify Pteridophytes into various groups, study their importance and multiplication of important ferns. ● Students will be able to understand the development of pollen, spore,fertilization and to apply palynological information to plant systematic. ● Distinguish key physiological processes underlying the seed germination. ● Identify the physiological factors that regulate growth and developmental processes of plants. ● Demonstrate clear understanding of crop-environment interaction and its implication on crop growth and yield. ● Integrate and apply their knowledge of crop physiology for analytical thinking and solving practical problems experienced in agricultural systems To understand and apply ecological principles and understand legislation and measures to solve environmental problems. ● Students will be able to identify medicinal plants and understand the effects of plant chemical constituents on humans and the use of plants in Dietetics and as	**Specific core discipline knowledge** ● Students can recall details and information about the evolution, anatomy, morphology, systematics, genetics, physiology, ecology, and conservation of plants and all other forms of life. ● Students can recall details of advanced disciplines of life sciences such as cytogenetics, molecular biology, biotechnology along with basic science. ● Students can recall details of the unique ecological and evolutionary features of the local and Indian flora. ● Students can familiarize with plants and environmental components by visiting different habitats. ● Students can learn about features, beauty, relationships of different plants by observing directly them in nature. ● Students can understand the working and functioning of biological industries and research laboratories.

	nutraceuticals. ● Student will understand the basic properties of plant cell and with apply the their basic knowledge of PTC in various fields for conservation, medicine, product development etc. ● Students will be able to understand the designing and function of various databases and bioinformatic resourses. ● Concepts, tools and techniques related to in vitro propagation of plants. ● Different methods used for genetic transformation of plants, use of Agrobacterium as a vector for plant transformation, components of a binary vector system ● Various case studies related to basic and applied research in plant sciences using transgenic technology ● Principles and methods used for phenotypic, genetic and molecular analysis of transgenic plants ● Students will acquire understanding of basic principles and modern age applications of recombinant DNA technology, Learning molecular and technical skills along with applications of the instrumentation, Designing/conducting experiments and analyzing experimental data.	**Communication skills** ● Students can communicate effectively using oral and written communication skills ● Students can build up representation skills. **Problem solving and research skills** ● Students can learn about research methodology. ● Students can generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context.

NAME OF THE DEPARTMENT: CHEMISTRY

Name of Programme: B.Sc. Chemistry

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
B.Sc. Chemistry	● Understanding of various methods of preparation and separation of different chemical compounds. ● Trained to use laboratory instruments like pH meter, potentiometer, colorimeter, and spectrophotometer. ● Ability to plan and execute small and medium size synthesis. ● Developing quantitative and qualitative skills by using instrumental	● Students gain knowledge through practical and theory ● Students are trained to use modern techniques and analysis ● Gain knowledge to design, carry out, record and analyze results of chemical reactions.

	and non-instrumental methods. ● Preparing for a career in pharmaceutical and chemical industries. ● Ability to make critical observations. ● Ability to analyze and interpret data.	● Acquire knowledge in handling different chemicals, reagents and instruments. ● Create an awareness of the impact of chemistry on the environment ● Finding out green route for chemical reaction for substantial development.

NAME OF THE DEPARTMENT: COMPUTER SCIENCE

Name of Programme: B.Sc. Computer Science

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
B.Sc. Computer Science	● Students can correlate about how computer systems work and underlying principles. ● Students can understand the basics of instruction set architecture for reduced and complex instruction sets. ● Students can develop skill to build, and troubleshoot digital circuit as a circuit designer. ● Students can be able to choose a career as a Processor Design, Memory Designer, Circuit Designer, Embedded System, BIOS Development. ● Students should be able to understand the concepts of programming before actually starting to write programs. Students should be able to develop logic for Problem Solving. ● Student should understand with different data structures List, tuple & Dictionaries, Students will understand the inbuilt functions of data structures, Students should be made familiar about the basic constructs of programming such as data, operations, conditions, loops, functions and anonymous etc. ● Student should learn all object oriented functions with Dir() function, built in Mathematical functions, apply the problem solving skills using syntactically simple language i.e. Python, good working knowledge of Open Source ecosystem, its use, impact and importance, Open Source methodologies, case studies with real life examples, BSD and Apache servers, Student will learn Github (versioning control) & Docker for image repositories.	● To develop fundamental knowledge about the fields of Cloud Computing, Data Science, Linux Administration, Software Testing, Network Security, develop Android Apps, Network Models, Creating Difference Web Application, Database Administrator, Data Analyst, Ethical Hacker, Any AI application, Security Architect of Java Enterprise. Embedded Engineer of IOT, Project Manager, Cloud Analyst. ● To motivate students to pursue higher studies such as MSc in research, MCA, MBA in IT,DBA, Linux & Server Administrator, Data Analyst, System Engineer. ● To motivate students to work as Project Manager.

	● Student will learn all types of open source software's along with GNU Linux utilities. ● Student will learn about Mozilla Firefox and other Browsers. ● Students will be able to evaluate business information problem and find the requirements of a problem in terms of data. ● Students should be able to understand the basic concepts of database and database systems, design the database schema with the use of appropriate data types for storage of data in database, create, manipulate, query and back up the databases, understand the different data models and there importance, do schema refinement and Normal forms, understand the basics and applications of Relational Algebra, join the tables, perform sub queries, perform views, Database protection concepts should be clear to all the students, perform DDL,DCL,DML,DQL and TCL. ● Students will be able to Write and interprets mathematical notation and mathematical definitions, Formulate and interpret statements presented in Boolean logic. Reformulate statements from common language to formal logic, Formulate short proofs using the following methods: direct proof, indirect proof, and proof by contradiction, and case analysis, Apply the different properties of injective, Surjective , Bijective, compositions, and inverse functions, Solve discrete mathematics problems that involve: computing permutations and combinations of set, fundamental enumeration principles, and graph theory, Understand the properties of graphs, operations performed on graphs, Understand the properties and types of Trees, Describe and apply the relationship between the properties of a matrix representation of a graph and the structure of the underlying graph. ● Students will be able to Understand the concept of the mean, median mode and other measures of central tendencies such as Percentiles, Deciles and Quartiles, Understand the concept of Skewness, Kurtosis, Recognize the role of probability theory, descriptive statistics and inferential statistics in the applications of many different fields, Understand the concepts of sample space, events and compute the probability and conditional probability of events and use Bayes Rule, Understand the concepts of discrete and continuous random variables, the discrete and continuous probability distributions and the joint probability distributions, Effectively communicate through verbal/oral communication and improve the listening skills, Write precise briefs or reports and technical documents, Actively participate in group discussion / meetings / interviews and prepare & deliver presentations, Become more effective individual through goal/target setting, self motivation and practicing creative thinking, Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of	● To motivate students to work as Developer o as a Technical Recruiter ● To motivate students to work as a Database/Network/Server Administrator.

	team work, Inter-personal relationships, conflict management and leadership quality, Students able to write, compile and debug programs in C language as a software debugger. ● Students able to write, compile and debug programs in C language as a software debugger, catch their own errors that happen during execution of programs, do network connectivity, design GUI applications as a Software developer, to connect to the database to move the data to/from the application, to understand that how to connect to computers, read from URL and send email. ● Student able to learn advanced subjects in computer science practically. ● The student should to able to create, update and delete packages. ● Working with User Administration and Firewalls and iptables. ● Student shall be able to progress as a Developer or Linux System Administrator using the acquired skill set, about Data structures, its types and significance in computing, Students can explore about Abstract Data types and its implementation. ● Students able to program various applications using different data structure in Python, understand Mathematical concepts like limit, continuity, derivative, integration of functions, Euler's formula, Simpsons rule. ● Students can appreciate real world applications which use calculus concepts. ● Students able to formulate a problem through Mathematical modeling and simulation. ● Students able to understand concepts of maxima functions, minima functions, cusps, chain rule. ● Students will be able to Understand concepts in probability and statistics and understand the concept of the transformation of variables and moment-generating functions, Define and examine the random sampling (population and sample, parameters and statistic) data displays and graphical methods with technology. ● Recognize and compute the sampling distributions, sampling distributions of means and variances and the t- and F-distributions. ● Understand one- and two- sample tests of hypotheses problems. ● Recognize the relationship between the confidence interval estimation and tests of hypothesis. ● Understand and examine the goodness-of-fit test, test for independence and homogeneity. ● Understand the basic concepts of simple linear regression, correlation and concept of the analysis-of-variance technique and the strategy of experimental design.	

	● Students able to understand the strategies, frameworks, processes and management of green IT. ● Students able to choose a career as a Environmental Scientist, Environmental Consultant, Environmental Science Manager, Wildlife Film-maker, Environment Journalists. ● Students get opportunities as Conservation Hydrologist, Director of Waste Management. ● To provide the comprehensive insight into theory of computation by understanding grammar, languages and other elements of modern language design. Also to develop capabilities to designand develop formulations for computing models and identify its applications in diverse areas. ● At the end of this course students should be able to: ● Understand Grammar and Languages. ● Learn about Automata theory and its application in Language Design. ● Learn about Turing Machines and Pushdown Automata. ● Understand Linear Bound Automata and its applications ● The objective of this course is to teach the learner how to use Object Oriented paradigm to develop code and understand the concepts of Core Java and to cover-up with the pre-requisites of Core java. At the end of this course students should be able to: ● Object oriented programming concepts using Java. ● Knowledge of input, its processing and getting suitable output. ● Understand, design, implement and evaluate classes and applets. ● Knowledge and implementation of AWT package. ● Describe the important computer system resources and the role of operating system in their management policies and algorithms. Understand the process management policies and scheduling of processes by CPU . Evaluate the requirement for process synchronization and coordination handled by operating system .Describe and analyze the memory management and its allocation policies. Identify use and evaluate the storage management policies with respect to different storage management technologies. Identify the need to create the special purpose operating system. ● Explain the features of database management systems and Relational database. Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra. Create and populate a RDBMS for a	

	real life application, with constraints and keys, using SQL. Retrieve any type of information from a data base by formulating complex queries in SQL. Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database. Build indexing mechanisms for efficient retrieval of information from a database. ● This course introduces topics in three key areas of discrete mathematics: graph theory, combinatory and extremal set theory. Students will have to reason abstractly, provide proofs of mathematical statements, and work with precise definitions. Specifically, by the end of this course, students will be able to State all of the technical definitions covered in the course (such as a graph, tree, planar graph, colouring, digraph, generating function, linear extension, and other terms). State all of the relevant theorems covered in the course. ● Use these definitions and theorems from memory to construct solutions to problems and/or proofs. ● Formulate graph theoretic models to solve real world problems (e.g., scheduling problems). ● Analyze combinatorial objects satisfying certain properties and answer questions related to ● existence (proving the existence or non-existence of such objects), construction (describing how ● to create such objects in the case they exist), enumeration (computing the number of such objects), and optimization (determining which objects satisfy a certain external property). ● Understand and apply the basic concepts of graph theory, including Eulerian trails, Hamiltonian cycles, bipartite graphs, planar graphs, and Euler characteristics. ● Use permutations and combinations to solve counting problems with sets and multisets ● Compute a generating function and apply them to combinatorial problems ● Set up and solve a linear recurrence relation ● Apply the inclusion/exclusion principle ● At the end of this course students should be able to: ● Learner will be able to understand the concepts of access to everything from learning	

	materials to communication channels, and they give teachers the ability to measure student learning progress in real-time. ● There are also more generic devices, like the Raspberry Pi or Arduino, Where students can build their own IoT end points. ● Students can also learn short-distance communication by ZigBee which is a wireless protocol for low-power and also students can learn a lot of data coming in fast, which has given rise to a new technology category, edge computing, consisting of appliances placed relatively close to IoT devices. ● At the end of this course students should be able to: ● To design valid, well-formed, scalable, and meaningful pages using emerging technologies. ● Understand the various platforms, devices, display resolutions, viewports, and browsers thatrender websites ● To develop and implement client-side and server-side scripting language programs. ● To develop and implement Database Driven Websites. ● Design and apply XML to create a markup language for data and document centricapplications. ● Learner will be able to understand the concepts of networking, which are important for them to be known as a 'networking professionals'. ● Useful to proceed with industrial requirements and International vendor certifications. ● Students should be able to understand the different network models. ● Students should know various services of layers - Physical ● layer, data link Layer, Network Layer and Transport Layer. ● Students should know various types of transmission media. ● Students should have knowledge about data link control and Media Access Control. ● Students should have proper knowledge about Wireless LANS ,connecting devices and Virtual LANS. ● Students should have knowledge about IP Addressing. Student should know basics of IP Protocol. ● Students will have knowledge about Software Measurement and Metrics,Risk Management. ● Student will know different aspects of Risk Management, Software Quality Assurance and Software testing. ● Student will have knowledge about phases of Project Management	

	● Student will be able to choose a career as Software Engineering Tools, Development Process, Tester, Designer, Maintenance management, Quality assurance, Configuration Management ● Appreciate the relevance of linear algebra in the field of computer science. ● Understand the concepts through program implementation ● Instill a computational thinking while learning linear algebra. ● Student has to add numpy and pandas packages for handling scientific function. ● Student should understand visualization with matplotlib. ● Understand the .NET framework ● Develop a proficiency in the C# programming language ● Student should able to understand vb.net & User Form creation and database connectivity with ADO.NET ● Different validation with web server pages to validate page client side as well as server side. ● Student Will Understand AJAX and LinQ concept to handle with websites. ● Proficiently develop ASP.NET web applications using C# ● Use ADO.NET for data persistence in a web application ● Understand the requirements of Mobile programming environment. ● Learn about basic methods, tools and techniques for developing Apps ● Explore and practice App development on Android Platform ● Develop working prototypes of working systems for various uses in daily lives. ● Learner will be able to develop Linux based systems and maintain. Learner will be able to install appropriate service on Linux server as per requirement. Learner will have proficiency in Linux server administration. ● Demonstrate proficiency with the Linux command line interface, directory & file management techniques, file system organization, and tools commonly found on most Linux distributions. Effectively operate a Linux system inside of a network environment to integrate with existing service solutions. Demonstrate the ability to troubleshoot challenging technical problems typically encountered when operating and administering Linux systems. ● Students should have a good working knowledge of Linux, from both a graphical and command-line perspective, allowing them to easily use any Linux distribution. ● Student able to learn advanced subjects in Information technology practically. ● The student should to able to create, update and delete packages.	

	● Working with User Administration and Firewalls and iptables. ● Students should be able to handle server with networking and FTP and apache web servers with domains and creating Linux Domain. ● Creating mail server and SSL with Authentication. ● The student shall be able to progress as a Developer or Linux System Administrator using the acquired skills ● To provide learner with knowledge in Software Testing techniques. To understand how testing methods can be used as an effective tools in providing quality assurance concerning for software. ● To provide skills to design test case plan for testing software Understand various software testing methods and strategies. Understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software. Design SQA activities, SQA strategy, formal technical review report for software quality control and assurance. ● To provide students with knowledge of basic concepts of computer security including network security and cryptography. ● Understand the principles and practices of cryptographic techniques. Understand a variety of generic security threats and vulnerabilities, and identify & analyze particular security problems for a given application. Understand various protocols for network security to protect against the threats in a network. ● To understand the details of web services technologies like SOAP, WSDL, and UDDI. To learn how to implement and deploy web service client and server. To understand the design principles and application of SOAP and REST based web services (JAX-Ws and JAX-RS).To understand WCF service. To design secure web services and QoS of Web Services ● Emphasis on SOAP based web services and associated standards such as WSDL. Design SOAP based / RESTful / WCF services Deal with Security and QoS issues of Web Services ● Learner should get the understanding computer Graphics programming using Directx or Opengl. Along with the VR and AR they should also aware of GPU, newer technologies and programming using most important API for windows. ● Learner should study Graphics and gamming concepts with present working style of developers where everything remains on internet and they need to review it, understand it, be a part of community and learn.	

	● To provide learners with the comprehensive and in-depth knowledge of Cloud Computing concepts, technologies, architecture, implantations and applications. To expose the learners to frontier areas of Cloud Computing, while providing sufficient foundations to enable further study and research. ● After successfully completion of this course, learner should be able to articulate the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing using open source technology. Learner should be able to identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc. They should explain the core issues of cloud computing such as security, privacy, and interoperability. ● To understand the procedures for identification, preservation, and extraction of electronic evidence, auditing and investigation of network and host system intrusions, analysis and documentation of information gathered ● The student will be able to plan and prepare for all stages of an investigation - detection, initial response and management interaction, investigate various media to collect evidence, report them in a way that would be acceptable in the court of law. ● To study two-dimensional Signals and Systems. To understand image fundamentals and transforms necessary for image processing. To study the image enhancement techniques in spatial and frequency domain. To study image segmentation and image compression techniques. ● Learner should review the fundamental concepts of a digital image processing system. Analyze the images in the frequency domain using various transforms. Evaluate the techniques for image enhancement and image segmentation. Apply various compression techniques. They will be familiar with basic image processing techniques for solving real problems. ● Understanding basic data science concepts. Learning to detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization. Making aware of how to address advanced statistical situations, Modeling and Machine Learning. ● After completion of this course, the students should be able to understand & comprehend the problem; and should be able to define suitable statistical method to be adopted. ● To understand the ethics, legality, methodologies and techniques of hacking.	

	● Learner will know to identify security vulnerabilities and weaknesses in the target applications. They will also know to test and exploit systems using various tools and understand the impact of hacking in real time machines.	

NAME OF THE DEPARTMENT: INFORMATION TECHNOLOGY

Name of Programme: B.Sc. Information Technology

Academic Year: 2018-19

Name of the Program	Course Outcomes	Program outcome
B. Sc. IT	● After completing this course, students are expected to: Know the semantics of fundamentals building blocks of the C programming language. Be able to simulate the step-by-step execution of small programs. Be able to write, compile and test programs that solve simple programming problems given an informal natural language specification. Know some basic algorithms for numeric computation, counting, searching and sorting. Acquire basic abilities in structured programming. ● Students able to understand and examine the structure of various number systems and its application in digital design. ● Students get opportunities as circuit developer to understand, analyze and design various combinational and sequential circuits. ● Students can circuit troubleshoot to identify and prevent various hazards and timing problems in a digital design. ● Students can develop skill to build, and troubleshoot digital circuit as a circuit designer. ● At the end of this course students should be able understand ● Memory devices and memory management; chipsets, storage, networking; port communication, such as Video Graphics Array (VGA), High-Definition Multimedia Interface (HDMI) and Universal Serial Bus (USB); and subsystem interfaces, such as	● To develop fundamental knowledge about the fields of C programming, Electronics with Embedded System, Microprocessors and Microcontrollers, Linux Administration, Software Testing, Software Engineering with Agile Methodology, Network Security, develop Android Apps, Network Models, Creating Difference Web Application, Database Administrator, Data Analyst, Ethical Hacker, Any AI application, Security Architect of Java Enterprise. Embedded Engineer of IOT, Project Manager, Cloud Analyst, Creating Any Next Generation Technology, Building Different Collections & Data Structures. ● To motivate students to pursue higher studies such as MSc in IT research, MCA, MBA in IT,DBA, Linux & Server Administrator, Data Analyst, System Engineer, Embedded Applications Engineer. ● To motivate students to work as Project Manager. ● To motivate students to work as Developer

	Peripheral Component Interconnect Express (PCIe). ● After successful completion of this course, student will be able to Understand discrete mathematical preliminaries. Apply discrete mathematics in formal representation of various computing constructs ● Recognize the importance of analytical problem solving approach in engineering problems. ● Introduce students to the techniques, algorithms, and reasoning processes involved in the study of discrete mathematical structures. ● Introduce students to set theory, inductive reasoning, elementary and advanced counting techniques, equivalence relations, recurrence relations, graphs, and trees. ● Introduce students to prove mathematical statements by means of inductive reasoning. ● Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc. from multiple perspectives. ● Students will be able to understand and evaluate key theoretical approaches used in the interdisciplinary field of communication. I.e., students will be able to explain major theoretical frameworks, constructs, and concepts for the study of communication and language, summarize the work of central thinkers associated with particular approaches, and begin to evaluate the strengths and weaknesses of their approaches. Students will be able to understand the research methods associated with the study of human communication, and apply at least one of those approaches to the analysis and evaluation of human communication. ● Students will be able to find, use, and evaluate primary academic writing associated with the communication discipline. ● Students will develop knowledge, skills, and judgment around human communication that facilitate their ability to work	● To motivate students to work as a Technical Recruiter. ● To motivate students to work as a Database/Network/Server Administrator.

	collaboratively with others. Such skills could include communication competencies such as managing conflict, understanding small group processes, active listening, appropriate self-disclosure, etc. ● Students will be able to communicate effectively orally and in writing. ● After completing the Course, students will learn: ● Articulate the principles of object-oriented problem solving and programming. ● Outline the essential features and elements of the C++ programming language. ● Explain programming fundamentals, including statement and control flow and recursion. ● Apply the concepts of class, method, constructor, instance, data abstraction, function abstraction, inheritance, overriding, overloading, and polymorphism. ● Program with basic data structures using array ● Program using objects and data abstraction, class, and methods in function abstraction. ● Analyze, write, debug, and test basic C++ codes using the approaches introduced in the course. ● Analyze problems and implement simple C++ applications using an object-oriented software engineering approach. ● At the end of the course: ● Students will have knowledge about different aspects of Microprocessor and microcomputers. ● They will have knowledge about interfacing of I/O Devices. ● Students will have knowledgeabout Programming Techniques using assembly language. ● Students will have knowledge about Microprocessors-Based Software Development system. ● After successfully completing this course, student should be able to: ● Support the development of web pages ● Write scripts using JavaScript in a web page	

	● Effectively incorporate JavaScript in a web page ● Create forms and check for data accuracy ● Use JavaScript system objects ● Embed objects in a web page ● Effectively use decision and looping statements in JavaScript programs ● Effectively manipulate strings ● Effectively use array processing. ● Upon successful completion of the course the students will be able to Understand the various approaches dealing the data using theory of probability. ● Analyze the different samples of data at different level of significance using varioushypothesis testing. ● Develop a framework for estimating and predicting the different sample of data forhandling the uncertainties. ● Understand error, source of error and its affect on any numerical computation and alsoanalyzing the efficiency of any numerical algorithm. ● Learn how to obtain numerical solution of nonlinear equations using Bisection, Newton –Raphson and fixed-point iteration methods. ● Solve system of linear equations numerically using direct and iterative methods. ● Understand the methods to construct interpolating polynomials with practical exposure. ● Upon completion of the course, students should be able to: ● Give an account of the concept green IT, ● Give an account of environmental perspectives on IT use ● Give an account of standards and certifications related to sustainable IT products, - Describe green IT in relation to technology. ● Relate green IT to sustainable development. ● Evaluate IT use in relation to environmental perspectives ● Discuss how the choice of hardware and software can facilitate a more sustainable operation	

	● Use methods and tools to measure energy consumption. ● Students should be able to understand the concepts of programming before actually starting to write programs. Students should be able to develop logic for Problem Solving. ● Student should understand with different data structures List, tuple & Dictionaries. ● Students should be made familiar about the basic constructs of programming such as data, operations, conditions, loops, functions and anonymous etc. ● Student should learn all object oriented functions with Dir() function. ● Student should learn built in Mathematical functions. ● Students should be able to apply the problem solving skills using syntactically simple language i.e. Python. ● Students will be able to analyze algorithms with BIG O and other notations ● Students will be able to summarize searching and sorting techniques, describe stack, queue and linked list operation, have knowledge of tree and graphs concepts. ● Learner will be able to understand the concepts of networking, which are important for them to be known as a 'networking professionals'. ● Useful to proceed with industrial requirements and International vendor certifications. ● Students should be able to understand the different network models. ● Students should know various services of layers – Physical layer, data link Layer, Network Layer and Transport Layer. ● Students should know various types of transmission media. ● Students should have knowledge about data link control and Media Access Control. ● Students should have proper knowledge about Wireless LANS connecting devices and Virtual LANS. ● Students should have knowledge about IP Addressing. ● Student should know basics of IP Protocol. ● Describe the fundamental elements of relational database management systems	

	● Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL. ● Understand database concepts and structures and query language ● Understand the E R model and relational model ● To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. ● Understand Functional Dependency and Functional Decomposition. ● Apply various Normalization techniques ● Perform PL/SQL programming using concept of Cursor Management, Error Handling, Package and Triggers ● Execute various advance SQL queries related to Transaction Processing & Locking using concept of Concurrency control. ● Understand query processing and techniques involved in query optimization. ● Understand the principles of storage structure and recovery management. ● Upon completion of this course, students should be able to: ● Compute a given integral using the most efficient method. ● Use integrals to formulate and solve application problems in science and engineering. ● Construct and plot parametric and polar curves. ● Identify different types of series and determine whether a particular series converges. ● Find the interval of convergence of a power series. ● Students are able to understand and solve mathematical problems using analytical methods. ● Recognize the relationships between different areas of mathematics and the connections between math-emetics and other disciplines. ● Implement object oriented programming concepts using Java. ● Knowledge of input, its processing and getting suitable output. ● Understand, design, implement and evaluate classes and applets. ● Knowledge and implementation of AWT package. ● Use an integrated development environment to write, compile, run,	

	and test simple object-oriented Java programs. ● Read and make elementary modifications to Java programs that solve real-world problems. ● Validate input in a Java program. ● The student will be able to: ● Understand the concept of embedded system, microcontroller, different components of microcontroller and their interactions. ● Get familiarized with programming environment to develop embedded solutions. ● Program 8051 microcontroller to perform various tasks. ● Understand the key concepts of embedded systems such as I/O, timers, interrupts and interaction with peripheral devices. ● Upon completion of the course students shall be able to: ● Recognize the error in the number generated by the solution. Compute solution of algebraic and transcendental equation by numerical methods like Bisection method and Newton Rapshon method. ● Apply method of interpolation and extrapolation for prediction. Recognize elements and variable in statistics and summarize qualitative and quantitative data. ● Calculate mean, median and mode for individual series. ● Outline properties of correlation and compute Karl-Pearson's coefficient of correlation. ● After learning software engineering, the students will be able to do the following things: ● Acquire strong fundamental knowledge in science, mathematics, fundamentals of computer science, software engineering and multidisciplinary engineering to begin in practice as a software engineer. ● Design applicable solutions in one or more application domains using software engineering approaches that integrate ethical, social, legal and economic concerns. ● Deliver quality software products by possessing the leadership	

	skills as an individual or contributing to the team development and demonstrating effective and modern working strategies by applying both communication and negotiation management skill. ● Apply new software models, techniques and technologies to bring out innovative and novelistic solutions for the growth of the society in all aspects and evolving into their continuous professional development. ● Student should learn new technologies with Agile Mythologies & scrum Techniques. ● At the end of this course students should be able to: ● Understand the basics of computer graphics, different graphics systems and applications of computer graphics. ● Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. ● Use of geometric transformations on graphics objects and their application in composite form. ● Extract scene with different clipping methods and its transformation to graphics display device. ● Explore projections and visible surface detection techniques for display of 3D scene on 2D screen. ● Render projected objects to naturalize the scene in 2D view and use of illumination models for this. ● Students will be able to: ● Apply project management concepts and techniques to an IT project. ● Identify issues that could lead to IT project successor failure. ● Explain project management in terms of the software development process. ● Describe the responsibilities of IT project managers. ● Apply project management concepts through working in a group as team leader or active team Member on an IT project. ● At the end of this course students should be able to: ● Learner will be able to understand the concepts of access to everything from learning materials to communication channels, and they give teachers the ability to measure student learning progress	

	in real-time. ● There are also more generic devices, like the Raspberry Pi or Arduino, Where students can build their own IoT end points. ● Students can also learn short-distance communication by ZigBee which is a wireless protocol for low-power. ● And also students can learn a lot of data coming in fast, which has given rise to a new technology category, edge computing, consisting of appliances placed relatively close to IoT devices. ● At the end of this course students should be able to: ● learn basics of the asp.net programming with the introduction of .NET framework and .NET class framework with some programming variables, data types, object-oriented terminology, creating objects and classes, overloading methods. ● learn Inheritance and interface implement the inheritance. ● Custom controls include the input validation controls, intrinsic controls, list bound controls, rich controls and user controls. ● create database connection also some other data controls. ● Students should have a good working knowledge of Linux, from both a graphical and command-line perspective, allowing them to easily use any Linux distribution. ● Student able to learn advanced subjects in Information technology practically. ● The student should to able to create, update and delete packages. ● Working with User Administration and Firewalls and ip tables. ● The student will be able to create Encryption & Decryption with Authentication with TLS Certification. ● The student will able to run shell scripts. ● Students should be able to handle server with networking and FTP and apache web servers with domains and creating Linux Domain. ● Creating mail server and SSL with Authentication. ● A student shall be able to progress as a Developer or Linux System Administrator using the acquired skills ● Students get learn to access database through Java programs, using Java Data Base Connectivity (JDBC). ● Students can create dynamic web pages, using Servlets and JSP. ● Students learn to make a reusable software component, using Java	

	Bean. ● Students can get opportunities to become a Java Developer. ● Students can get to learn about request dispatcher, cookies, session and also working with the file. ● Students have brief knowledge about JPA application, Hibernate and Hibernate applications. ● Students able to understand object/ relational mapping and JPA. ● On successful completion of the course students will be able to: ● learn quality standards for developing a software ● learn quality principles, different models used in software development. ● Implement Black box and white box testing techniques ● Implement test cases, test suites ● Understand different metrics of software. ● Analyze and resolve security issues in networks and computer systems to secure an IT infrastructure. ● Design, develop, test and evaluate secure software. ● Develop policies and procedures to manage enterprise security risks. ● Evaluate and communicate the human role in security systems with an emphasis on ethics, social engineering vulnerabilities and training. ● Identify some of the factors driving the need for network security. ● Identify and classify particular examples of attacks. ● Define the terms vulnerability, threat and attack. ● Identify physical points of vulnerability in simple networks. ● On successful completion of the course students will be able to: ● Describe the concepts and components of Business Intelligence (BI). ● Critically evaluate use of BI for supporting decision making in an organization. ● Understand and use the technologies and tools that make up BI (e.g. Data warehousing, Data reporting and use of Online analytical processing (OLAP)). ● Understand and design the technological architecture that underpins	

	BI systems. ● Plan the implementation of a BI system ● At the end of this course students should be able to: ● Analyze data, explore issues, problem solve, and evaluate situations in a geographic and spatial context. ● Because technology is constantly changing, the curriculum is modified and realigned, as necessary, to include changing software, new features and applications, and emerging technologies so students will be updated by this. ● Another goal of Geospatial Programs is to prepare students for the geospatial workforce. The learning outcomes for the programs and courses are rooted in the Geospatial Technology Competency Model (GTCM). ● Students will acquire the basics of GIS and will be able to Explore mapped data, Relate GIS with remote sensing technologies, Analyze spatial data, using GIS analysis tools will able to Develop and manage geodatabases, Create maps, images and apps to communicate spatial data in a meaningful way to others. ● Students will be able design transition stages. ● Students will be able to provide all aspects of modern technology. ● Students will be able to identify environmental problems, evaluate problem-solving strategies, and develop appropriate solutions. ● Students able to evaluate, integrate, and apply appropriate information from various sources to provide IT services. ● Students can design modern IT services required to users. Students able to understand service transition, transition processes like service validation and testing, evaluation, knowledge management.	

NAME OF DEPARTMENT: ECONOMICS

Name of Programme: B.Com AND M.Com (CBCS)

Academic Year 2018-19 and 2019-20

Program Name	**Course outcomes**	**Programme outcomes**

B. Com (Business Economics)	● Develops deep insights about various tools of economic analysis and basics of market demand, market supply, and equilibrium price. ● Enrich with deep insights, the nature of demand curves under different markets, the elasticity of demand and its applications, and methods of demand estimation. ● Enrich with the knowledge of production function, theories of the short and long-run production function, and producer's equilibrium. ● Study various concepts of costs and cost output relationship in the short run and long run, and cost curves and their interrelationships. ● Enriches with the awareness of price and output determination under competitive markets and monopoly. ● To develop the awareness of price and output determination under monopolistic competition and oligopoly market structures. ● Study various methods of product pricing such as, full-cost pricing, marginal cost pricing, mark-up pricing, multi-product pricing, etc. ● Learn about capital budgeting and various techniques of investment appraisal. ● Make familiarity with macroeconomics concepts such as circular flow, National income, trade cycle, classical macro-economics, etc. ● Develop an understanding of Keynes' theory. ● Study concepts like goods and money market equilibrium, IS-LM Model, Phillips curve, Stagflation, Supply-side economics. ● Enrich with deep insights about demand for money, supply of money, and inflation. ● Make acquaintance with the role of government in economic affairs, principle of maximum social advantage etc. ● Develop an understanding of different sources of public revenue, the nature and effects of taxation, and the redistributive and anti – inflationary nature of taxation. ● Make acquaintance with the concept of public expenditure and debt. ● To Deepen the knowledge about fiscal policies and their different aspects, public budget, deficits, and centre-state financial relationship. ● Enable the students to understand New Economic Policy, 1991. ● Develop deep insights about various aspects of sustainable development and other development programmes. ● Understand the role of government in terms of foreign investment, enumerate the	● Provides an overall introduction to economics and develops an understanding of the allocation of scarce resources and their optimum uses. ● Develop skills with the basic tools of consumer, producer, and the market theories and their optimization in an economic context. ● Develops an overall macroeconomic approach to evaluate macro-economic phenomena such as inflation, unemployment, and growth.

	implication of National Agricultural Policy, 2000. ● Understand various issues such as, pricing, finance, marketing, research etc. associated with agricultural development. ● Deepen the knowledge of basic economic concepts related to the rural economy. ● Understand the role and issues of industrial and service sectors, and various policies related to these sectors during the post reform period. ● Enumerate the challenges in the banking and insurance sector. ● Make familiarity with different types of financial markets and their role. ● The course enables us to understand the major models of theories of international trade, their assumptions, and economic implications. ● Evaluation of Terms of Trade ● Develop deep insights about various gains from trade. ● Enumerate the implications of trade policies. ● Understand appropriate trade policy and measures taken to protect domestic industries. ● Deepen with the knowledge of regionalism and trade blocs such as EU, ASEAN etc. ● Learning BOP, the various concepts associated with it, and causes and measures to correct disequilibrium in BOP. ● Understand the role of WTO and recent developments in TRIPS, TRIMS, and GATS. ● Enumerate the role and functions of foreign exchange market. ● To understand PPP theory, spot and forward exchange rate, arbitrage, and managed flexibility in India.	
M. Com (CBCS)	● Analyse definitions and subject matter of Business economics as well as to develop deep insights about various tools of economic analysis to understand basic principles in Business Economics. ● To study the demand and supply analysis, encapsulating Market Demand Function including Theory of Attributes, Snob Appeal, Bandwagon, and Veblen Effect, and the Supply Function. ● To understand applications of elasticity of demand and supply to economic issues like Paradox of Bumper Harvest, Tax on Price and Quantity, Minimum Floor and Maximum Ceilings, Minimum Wages Controversy, Administered Price Control, etc. ● To understand the Theory of Consumer Choice, with the help of Indifference Curve Analysis. ● To learn Short Run and Long Run production function, production decisions, and	● To acquaint a student with conventional as well as contemporary areas in the discipline of Commerce. ● To enable a student to be well versed in national as well as international trends. ● Enabling students in conducting business, accounting and auditing practices, role of regulatory bodies in corporate and

	cost analysis. ● To understand in detail, perfect and imperfect competition, and determination of price and output under various market structures. ● Basic concept and application of Game Theory, Prisoner's Dilemma in market decisions. ● Analyse Definitions and subject matter of Macroeconomics. ● Enrich with deep insights, various concepts of national income, and tools of national income measurement to understand the role of HDI. ● Develop knowledge aboutKeynesian concepts like ADF, and ASF. ● Analyse inflation, Phillips curve and understand trade-off between inflation and unemployment. ● Study of IS-LM model, and various stabilisation policies. ● Understand the international aspects of macroeconomic policy with special reference to chronic problem of disequilibrium in balance of payments along with corrective policy measures. ● To study the Mundell-Fleming Model, and make familiar with, the concepts of devaluation, revaluation, and J-Curve Effect.	financial sectors nature of various financial instruments. ● To provide in-depth understanding of all core areas specifically Advanced Accounting, International Accounting, Management, Security Market Operations and Business Environment, Research Methodology and Tax planning.

NAME OF THE DEPARTMENT: COMMERCE

Name of Programme: Bachelor of Commerce

Academic Year 2018-19

Name of the Program	Course Outcomes	Program outcome
B.Com	● This course imparts the basic knowledge of setting business unit as an entrepreneur and also familiarize the learners with current trends in business & services. It also helps student to understand fundamentals of services and its various strategies. ● This course helps the students to understand the Concepts of Management, Planning & Decision Making, Organizing, Directing & Controlling etc. which enables them to use this theoretical knowledge into practice. ● This course aims in familiarizing students with various marketing & advertising concepts ● After completion of the course the students will be able to: calculate gross and net profit or loss, department-wise, follow proper accounting principles while preparing the final account, understand the basic principles of allocation of expenses and income, Prepare final accounts of partnership firm along with either the effects of admission and retirement of the partners, Compute purchase consideration and prepare necessary accounts for the amalgamation of partnership firm and also for the conversion of partnership firm into Ltd. Companies, Assist in planning and formulation of future policies, Understand the basic concepts & principles of audit, auditing standards, provisions of companies act and general procedures required in conducting audit, Prepare the final accounts of LLP of small size and follow the steps for formation of LLP	● Understanding of Business concepts, how to start business, its environment, government regulations, financial organizations assisting business units. ● Understanding service sector concepts, its recent trends like retailing BPO/ KPO/LPO, B2B, B2C, C2C, Debit card, credit card, internet banking, ERP system. ● Understanding production & inventory management, Indian financial system, regulatory bodies, functions of SEBI, NSDL, CDSL, stock exchange, credit rating agencies, types of markets, participants in market,mutual funds concepts. ● Understanding of Human Resource related function of Business, HR planning, career development, motivation, recent trends in HRM like EQ, SQ, counseling, HR accounting. ● Understanding concepts of market research for old & new product, Price, Brand, Distribution Channel , Promotion research, recent trends in market research. ● Understanding principles of Management, theories of management. ● Understanding media used for advertising,

		planning media design, budgeting, creativity in advertising, career in advertising, execution of advertising regulatory bodies in advertising, social n ethical aspect of advertising, types of adverting. ● Understanding concepts of marketing, history of marketing, market segmentation, 8 Ps of Marketing Mix, resent trends in marketing.
M. Com.	● The student is able to segregate between fixed and variable cost, He will be able to calculate total cost and marginal cost and can take decisions like based on price level, level of output, comparative cost analysis, make or buy, Student is able to perform cost analysis based on fixed and variable cost. ● The student is able to calculate variance relating to element of costs, and is able to understand as to how to control cost. ● The student will be above to estimate the cost structure at different levels of output, analysis of overall environment of organization and preparation of different budgets related to functional areas of the business. ● This topic helps the students to understand the cost units of various service industries, such as transport, electricity, hotel, hospital, and their cost elements, and skilled the students to calculate the cost of per unit service consumed. ● To know the meaning and nature of finance function, objectives of finance function, organization of finance function. Student is able to understand, the difference between the objectives like Profit maximization, wealth maximization He is able to understand the role of finance manager in the organization and qualities of finance manger. ● The student understand, how the value of money is related to time, with the passage of time the value of money diminishes, effects of inflation over the capital inflows and outflows. • The student is able to understand the use of different tools of financial analysis, such as financial ratios, comparative financial	• Provides quality education in the field of Accountancy and Financial Management at the higher level. • It provides a student well for appearing Competitive Exams like NET/SET in Commerce. • It provides firm foundation to take up Consultation/Teaching jobs. • This Degree can make things easier for students obtaining Professional Courses. • It ensures that a student achieves mastery over the subject. • It enables students to chalk out Business Policies after analyzing effect of Government Policies.

	analysis and is able to understand as to what is solvency, liquidity, and financial stability of corporate, and financial decisions. • The student becomes prudent to take financial decisions relating to investment planning, Inflow and outflows of cash, Cost of Capital decisions, Capital Structure decisions, Risk analysis (Business Risk and Financial Risk. • This course helps students with various different Cost accounting systems which objects to tackle tracking of external cost and activities and also help to learn about internal process costings. • This course helps in understanding more about Cost reduction with efficiency without compromising the quality of operations and establishes standards methodologies. • Finance Management helps students not only manage and understand about management of different financial aspects but also gives bigger vision inside finance operations and standards in industries which are currently being followed. • With understanding and completion of this course, the students will be able to understand better financial planning, cost reduction techniques, different standards and protocols used in organisations to have effective utilisation of resources and funds, students will also be able to assist organisations in making critical financial decisions. This course will also enable students to understand if organizations assets are being completely used, if the wastage of funds and resources is kept to minimum, are the decisions made by company align to best financial interests. • Overall, this will enable students to learn and prepare companies better with broad exposure to finance and cost management techniques.	